

A. REMARKS

In this reply, no claims have been canceled or added. Hence, Claims 1-8, 10-15, 17-21, 23-25, 27-31, 33-46, 48-53, 55-59, 61-63 and 65-89 are pending in this application. All issues raised in the Office Action mailed June 13, 2006 are addressed hereinafter.

ALLOWABILITY OF CLAIMS

The indicated allowability of Claims 23, 24, 27-30, 33-38, 61, 62, 65-68, 88 and 89 is gratefully acknowledged. These claims have not been rewritten in independent form at this time however, because it is believed that all of the pending claims are patentable over the references cited and relied upon for at least the reasons set forth hereinafter.

REJECTION OF CLAIMS 21, 25, 31, 59, 63 AND 87 UNDER 35 U.S.C. § 103(a)

Claims 21, 25, 31, 59, 63 and 87 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wang* in view of *Sankaranarayanan et al.*, U.S. Patent No. 6,134,274 (hereinafter "*Sankaran*"). It is respectfully submitted that Claims 21, 25, 31, 59, 63 and 87 are patentable over *Wang* and *Sankaran* for at least the reasons set forth hereinafter.

CLAIM 21

Claim 21 is directed to a method for assigning gain values to a plurality of channels in a discrete multi-tone modulation communications system. Claim 21 recites:

“assigning, to each channel in the plurality of channels, a gain value based upon a performance characteristic and a specified gain limit for each channel in the plurality of channels.”

In the approach recited in Claim 21, a gain value is assigned to each channel in the plurality of channels based upon both a performance characteristic and a specified gain limit for each channel in the plurality of channels. It is respectfully submitted that this approach is not taught or suggested by *Wang* or *Sankaran*. The Office Action mailed on June 13, 2006 asserts that the Claim 21 limitations “assigning, to each channel in the plurality of channels, a gain value based upon a performance characteristic and a specified gain limit for each channel in the plurality of channels” are not taught or suggested by *Wang*, but are taught by *Sankaran* at Col. 4, lines 33-65.

It is respectfully submitted that the aforementioned limitations are not taught or suggested by the text at Col. 4, lines 33-65 of *Sankaran*. The text at this portion of *Sankaran* describes how the maximum number of bits per frequency bin is calculated. Calculating the maximum number of bits per frequency bin includes calculating the gain-to-noise ratio (GNR). The GNR is not a constraint. Rather, it is a performance characteristic that used to calculate the maximum number of bits that can be allocated to each frequency bin and is not the same as a gain limit constraint on each channel.

The only constraint taught or suggested by the text at Col. 4, lines 33-65 of *Sankaran* is the overall power constraint that includes a power limit for each frequency bin and a total power limit for all frequency bins. A power limit for each frequency bin is not the same as a gain limit for each frequency bin. There is no teaching or suggestion in *Sankaran* of assigning a gain value to each channel in the plurality of channels based upon both a performance characteristic and a specified gain limit for each channel in the plurality of channels. It is therefore respectfully submitted that at least the Claim 21 limitations “assigning, to each channel in the plurality of channels, a gain value based upon a performance characteristic and a specified gain limit for each channel in the plurality of channels” are not taught or suggested by *Wang* or *Sankaran* and that Claim 21 is therefore patentable over *Wang* and *Sankaran*, considered alone or in combination.

CLAIM 25

Claim 25 is directed to a method for assigning bits in a discrete multi-tone modulation communications system. Claim 25 recites:

“assigning, to one or more channels in a plurality of channels, a number of bits based on a performance characteristic of each of the one or more channels; and assigning to the one or more channels a gain value based on the performance characteristic of each of the one or more channels so as to set a margin for each of the one or more channels to be in a specified range.”

In the approach recited in Claim 25, a gain value is assigned to each channel in the plurality of channels based upon a performance characteristic so that a margin for each channel is in a specified range. It is respectfully submitted that this approach is not taught or suggested by *Wang* or *Sankaran*. There is no mention in either reference of assigning a gain value to each

channel based upon a performance characteristic so that a margin for each channel is in a specified range.

The Office Action mailed on June 13, 2006 asserts that Claim 25 is similar to Claim 21 and is therefore rejected under the same rationale as Claim 21. Claim 25, however, recites that the gain value is assigned to a channel based upon a performance characteristic so that a margin for each channel is in a specified range. Claim 21 does not include any limitations related to this approach. Therefore, if the rejection is to be maintained, the Examiner is respectfully invited to identify what portions of the reference specifically teach the limitations recited in Claim 25.

CLAIM 31

Claim 31 recites limitations similar to Claim 25, except in the context of a receiver having a bit assignment and adjustment module and a gain value module. It is therefore respectfully submitted that Claim 31 is patentable over *Wang* and *Sankaran* for at least the reasons set forth herein with respect to Claim 25.

CLAIM 59

Claim 59 recites limitations similar to Claim 21, except in the context of a computer-readable medium. It is therefore respectfully submitted that Claim 59 is patentable over *Wang* and *Sankaran* for at least the reasons set forth herein with respect to Claim 21.

CLAIM 63

Claim 59 recites limitations similar to Claim 25, except in the context of a computer-readable medium. It is therefore respectfully submitted that Claim 63 is patentable over *Wang* and *Sankaran* for at least the reasons set forth herein with respect to Claim 25.

CLAIM 87

Claim 87 recites limitations similar to Claim 21, except in the context of an apparatus. It is therefore respectfully submitted that Claim 87 is patentable over *Wang* and *Sankaran* for at least the reasons set forth herein with respect to Claim 21.

In view of the foregoing, it is respectfully submitted that Claims 21, 25, 31, 59, 63 and 87 are patentable over *Wang* and *Sankaran*. Accordingly, reconsideration and withdrawal of the

rejection of Claims 21, 25, 31, 59, 63 and 87 under 35 U.S.C. § 103(a) as being unpatentable over *Wang* in view of *Sankaran* is respectfully requested.

CONCLUSION

It is respectfully submitted that all of the pending claims are in condition for allowance and the issuance of a notice of allowance is respectfully requested. If there are any additional charges, please charge them to Deposit Account No. 50-1302.

The Examiner is invited to contact the undersigned by telephone if the Examiner believes that such contact would be helpful in furthering the prosecution of this application.

Respectfully submitted,

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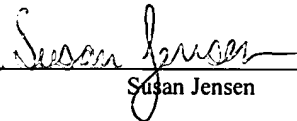
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on August 18, 2006

by


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